

SECTION TWO: Illness/Natural Cause Deaths

All Illness/Natural Cause Deaths Other Than SIDS

“The infant mortality rate has declined steadily during the last decade, due, in part to improved medical technology and public health outreach...Infants are more likely to die before their first birthday if they live in unsafe homes and neighborhoods or have inadequate nutrition, health care or supervision.”

-Kids Count Missouri, Citizens for Missouri's Children and Children's Trust Fund

Illness/natural causes, other than SIDS, were responsible for the deaths of 645 Missouri children in 2001, representing 63% of all Missouri incident fatalities.

Illness/natural cause deaths include prematurity, congenital anomalies, infection and other conditions. Most child deaths are related to illness or other natural cause. The vast majority of natural cause deaths occur before the first year of life and are often related to prematurity or birth defects. Sudden Infant Death Syndrome (SIDS), a natural death, is discussed in the section that follows.

Figure 6. Illness/Natural Cause Deaths by Age

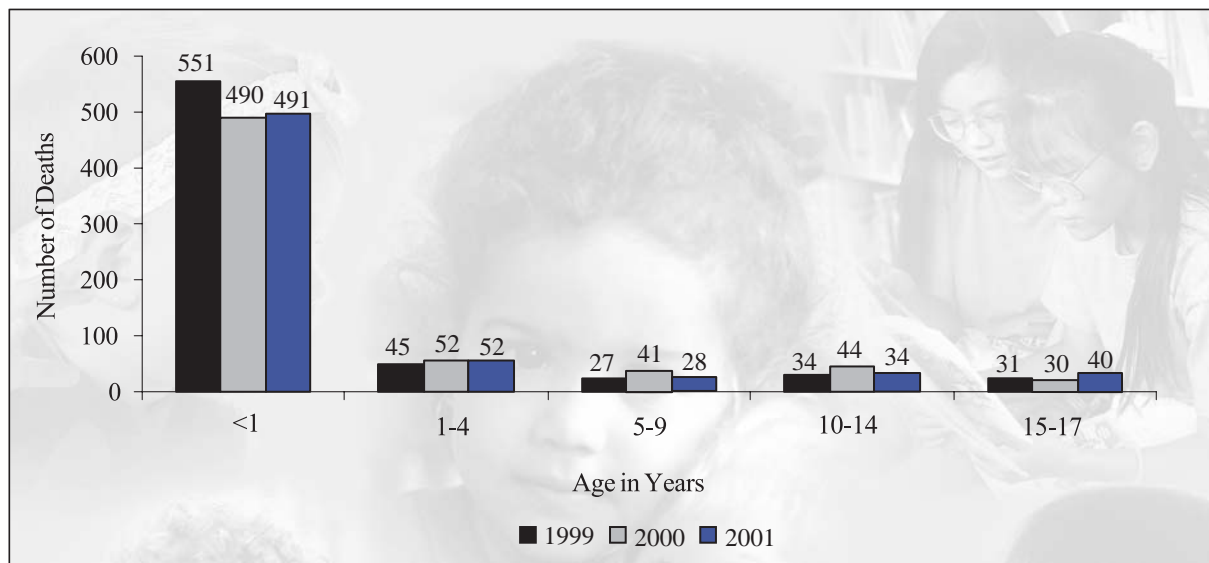
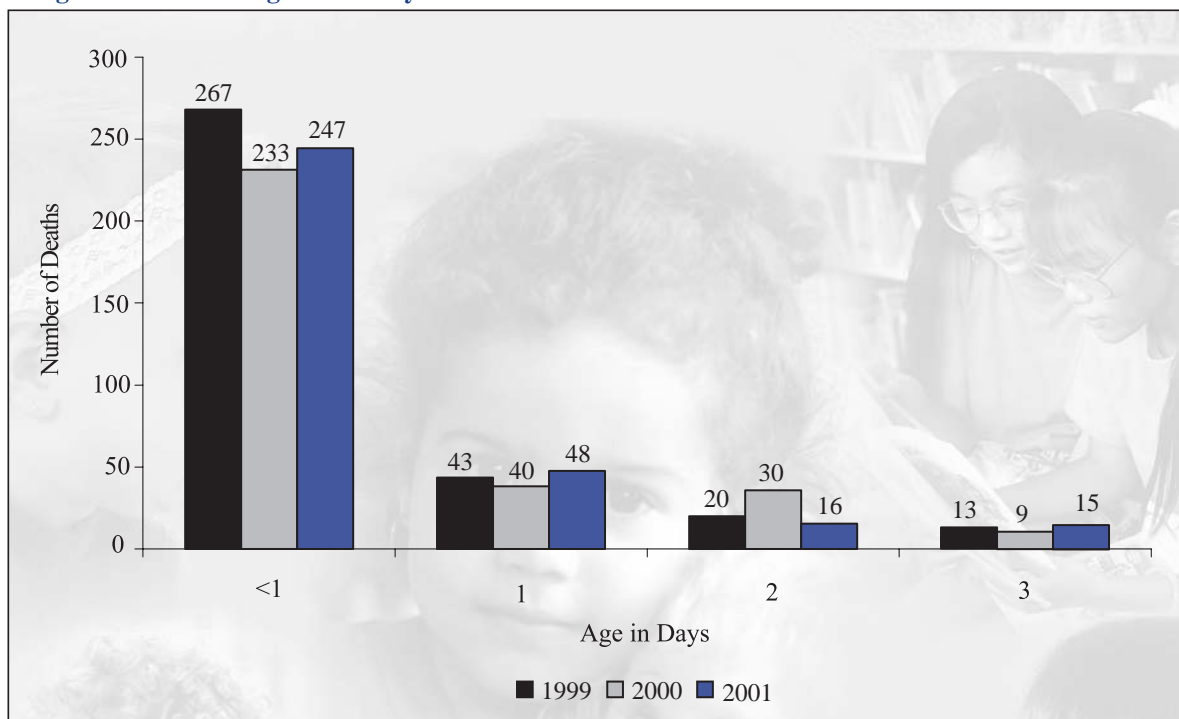


Figure 7. Illness/Natural Cause Deaths by Sex and Race

Sex	1999	2000	2001	Race	1999	2000	2001
Female	296	307	268	White	461	462	433
Male	392	350	377	Black	217	188	201
				Other	10	7	11
	688	657	645		688	657	645

Infants less than one year of age comprised the majority (76%) of illness/natural cause deaths in 2001 with **491**. Of those, **326** (66%), occurred within the first three days of life; **247** (50%) of those occurred within 24 hours of birth.

Figure 8. Children Age Three Days or Less That Died of Illness/Natural Causes**Figure 9. Children Less Than One Year That Died of Illness/Natural Causes by Sex and Race**

Sex	1999	2000	2001	Race	1999	2000	2001
Female	233	226	200	White	361	331	305
Male	318	264	291	Black	182	152	177
				Other	8	7	9
	551	490	491		551	490	491

Natural Cause Deaths in Infants Less Than One Year as Reported on CFRP Data Forms

Age at death		Gestational age at birth	
0 - 24 hours	283	<25 weeks	204
24 - 48 hours	22	25 - 30 weeks	64
48 hours - 6 weeks	110	30 - 37 weeks	65
6 weeks - 6 months	50	>37 weeks	63
6 months - 1 year	23	Unknown	68
Not Answered	3	Not Answered	27

Birth weight in grams (approximate lbs/oz)		Multiple births	
<750 (<1 lb 10 oz)	199	Yes	75
750 - 1,499 (1 lb 10 oz - 3 lbs 5 oz)	49	No	378
1,500 - 2,499 (3 lbs 5 oz - 5 lbs 5 oz)	40	Not Answered	38
>2,500 (>5 lbs 5 oz)	73		
Unknown	88		
Not Answered	42		

Medical complications during pregnancy		Smoking during pregnancy		Drug use during pregnancy		Alcohol use during pregnancy	
Yes	13	Yes	12	Yes	13	Yes	6
No	7	No	6	No	9	No	7
Unknown	20	Unknown	24	Unknown	22	Unknown	30

Fetal and Infant Mortality Review (FIMR) and the Child Fatality Review Program

Today, the death of a child, especially the youngest, most vulnerable infant, is viewed as a sentinel event that is a measure of a community's overall social and economic well being, as well as its health. Fetal mortality is defined as the death of a fetus in utero at 20 weeks or more gestation. Infant mortality is defined as the death of an infant before one year of age. (The Missouri Child Fatality Review Program examines the deaths of *all children born live* through age 17.)

Over the past decade, two methods for examining these deaths at a local level have emerged: fetal and infant mortality review (FIMR) and child fatality review (CFRP). While there are a number of distinct and important differences in the two systems, there are also similarities, including basic human concern and advocacy. There are opportunities for local collaboration between the two systems that will benefit children and their families. ("Fetal and Infant Mortality Review and Child Fatality Review: Opportunities for Local Collaboration," NFMIR Bulletin, January 2000).

Sudden Infant Death Syndrome (SIDS)

Sudden Infant Death Syndrome (SIDS) was the cause of death of 42 Missouri infants in 2001, representing 9% of all natural cause deaths of infants less than one year of age.

Representative Cases:

- **Infants should be placed on their backs to sleep.**

A 6-month-old infant girl was placed on her stomach in a full-size bed for a nap. Two hours later she was found unresponsive and not breathing.

A 9-week-old infant girl was found unresponsive in her bassinet during the night. She was placed on her stomach to sleep.

A 7-month-old infant girl was laid down in an adult bed on her stomach after awaking in the night for a feeding. She was found unresponsive and blue the next morning.

A 4-week-old infant girl was placed on her stomach to sleep. She was later found unresponsive in her bassinet face down.

- **The safest place for infants to sleep is in a standard crib with a firm mattress and no soft bedding.**

A 4-month-old male infant was put to sleep in his crib with a heavy blanket covering him. He was later found unresponsive with the blanket up around his face.

An 18-week-old male infant was placed on a sofa with a cover for a nap. He was found 20 minutes later, unresponsive and blue.

A 3-month-old male infant was put to sleep in a waterbed. When checked on later in the evening it appeared the baby had rolled and was found unresponsive, face down.

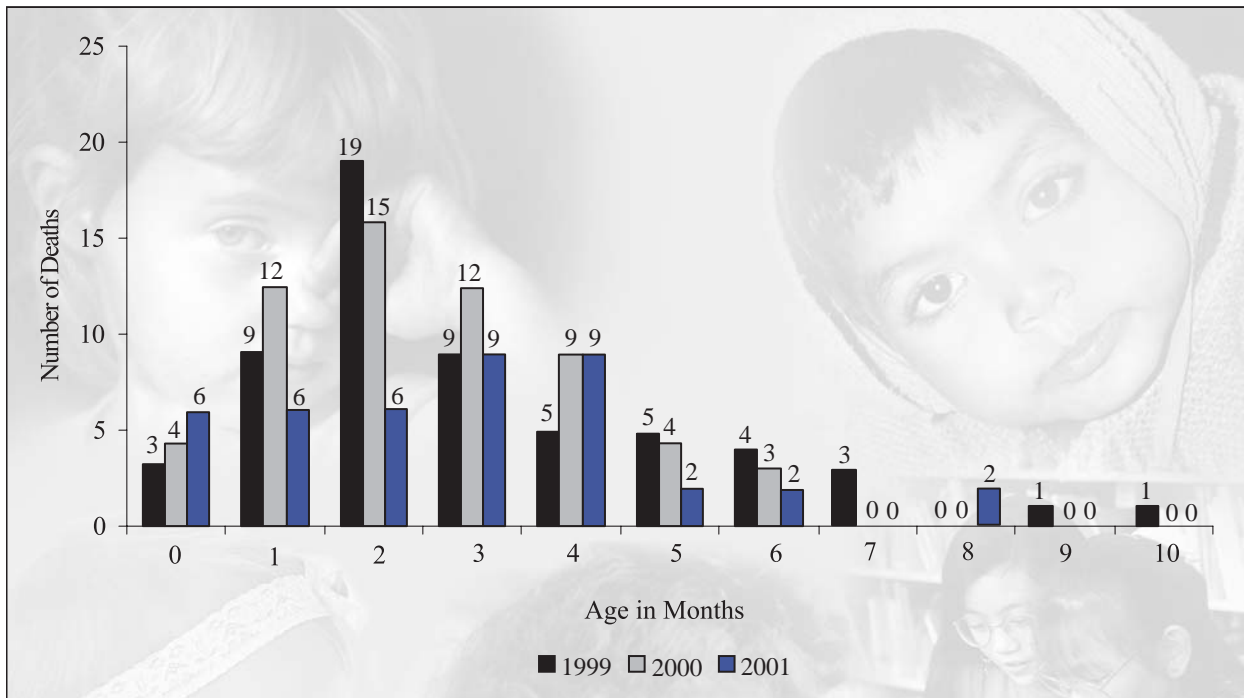
A 10-week-old infant boy with a recent history of congestion was brought to bed with his parents. Mom fell asleep with the baby on her chest and awoke five hours later to find the baby on the floor lifeless.

Sudden Infant Death Syndrome (SIDS) is the sudden, unexpected death of an apparently healthy infant under one year of age, which remains unexplained after the performance of a complete post-mortem evaluation/investigation that includes an autopsy, investigation of the scene of death and review of the case history. SIDS is characterized by the sudden death of an infant during a sleep period. SIDS is a diagnosis of exclusion; there are no pathological markers that distinguish SIDS from other causes of sudden infant death. There are no known warning signs or symptoms. Ninety percent of SIDS deaths occur in the first six months of life, with a peak at 2-4 months. While there are several known risk factors, the cause or causes of SIDS are unknown at this time.

The Triple Risk Model for SIDS is often used to describe the confluence of events that may lead to the sudden death of an infant. This model involves a vulnerable infant, (one with a subtle defect involving brainstem arousal responses) at a critical developmental period (less than six months of age), exposed to environmental challenges to which he/she does not respond (such as overheating, tobacco smoke, or prone sleeping).

SIDS is generally considered a natural manner of death. SIDS is not caused by spitting up, choking or minor illnesses, such as a cold. SIDS is not caused by immunizations; it is not contagious; SIDS is not child abuse. SIDS is not the cause of every sudden or unexpected infant death. In fact, of the **116** sudden unexpected deaths of infants under the age of one year reported to the Child Fatality Review Program in 2001, **42** were diagnosed as SIDS following autopsy, investigation and panel review. The cause of death for the remaining **74** infants included **16** illness/natural cause, **8** homicides, **21** unintentional suffocations, **2** heatstroke, and **27** undetermined.

Figure 10. SIDS Fatalities by Age



Note: In 1999, one child is not included in this chart. Although the cause of death appears to be SIDS, the child was 13 months old.

Figure 11. SIDS Fatalities by Sex and Race

Sex	1999	2000	2001	Race	1999	2000	2001
Female	24	25	24	White	34	41	31
Male	36	34	18	Black	25	18	10
				Other	1	0	1
	60	59	42		60	59	42

Figure 12. SIDS Rate 1994-2001

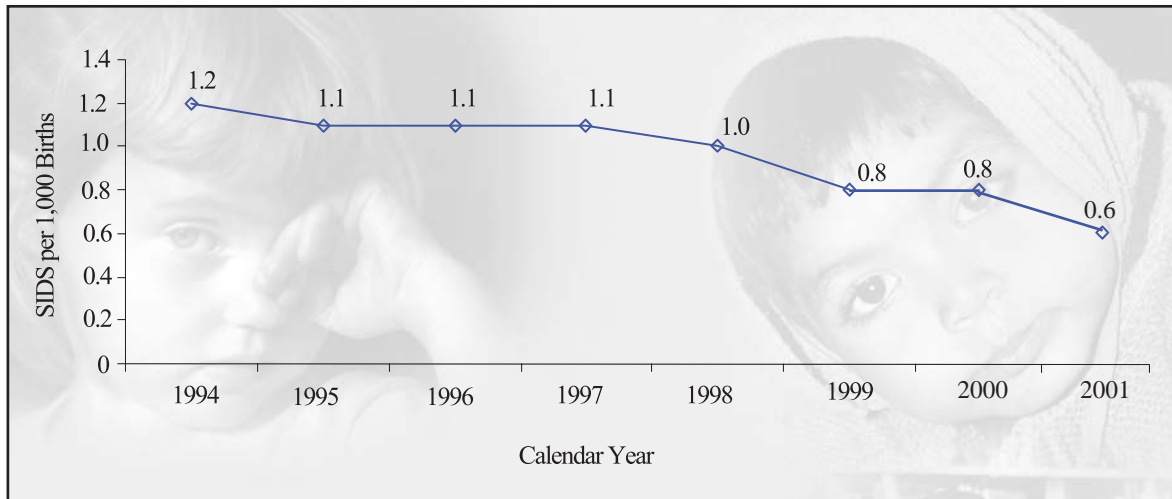
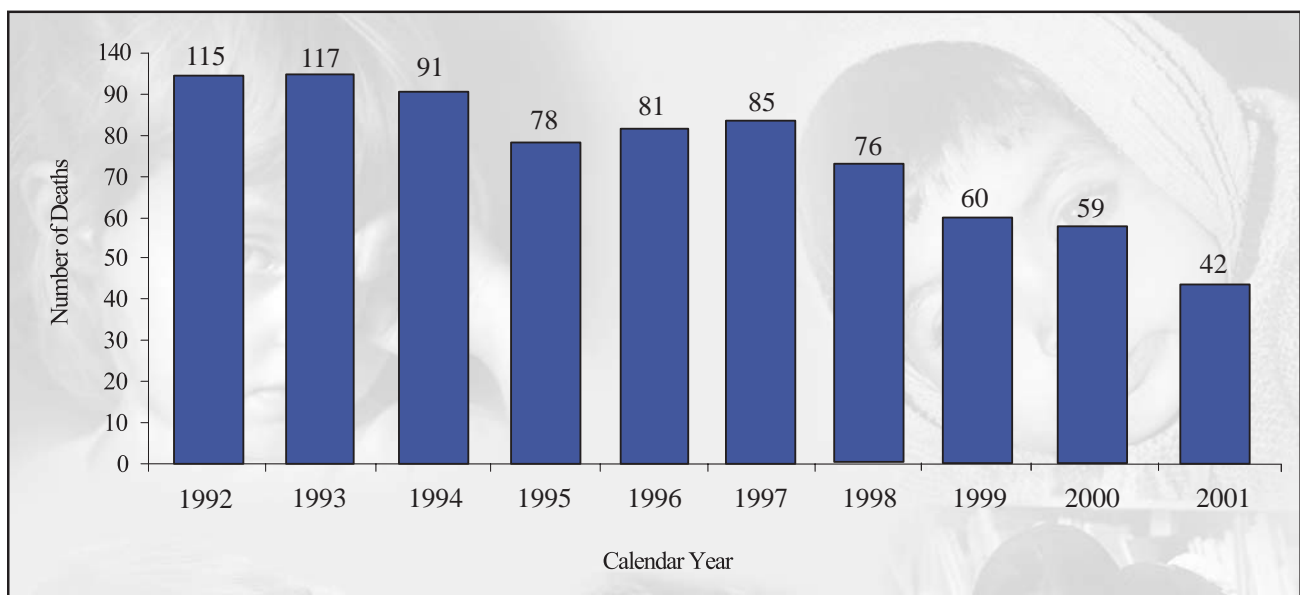


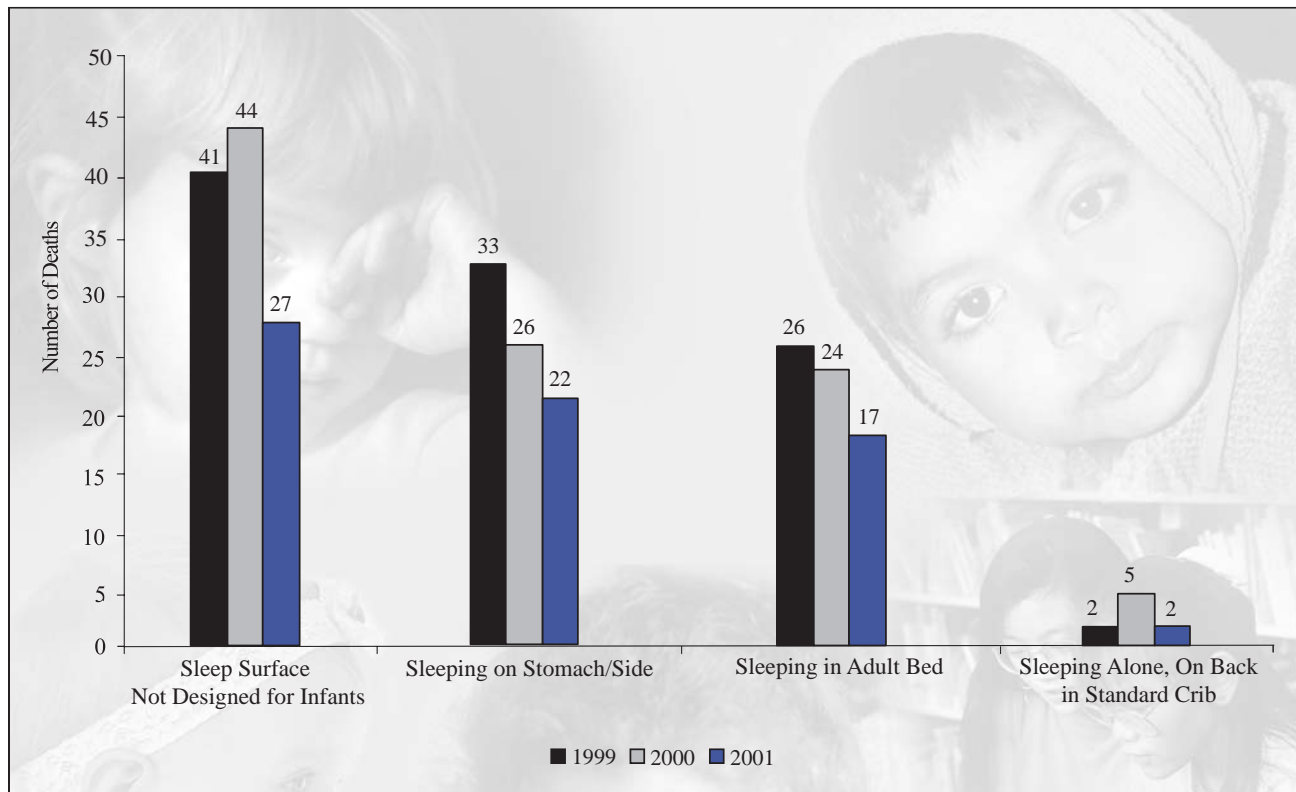
Figure 13. Missouri SIDS Deaths 1992-2001



Recent research findings have resulted in accelerated progress in the understanding of sudden unexpected infant death. Unsafe sleep arrangements are now known to be a highly significant risk factor occurring in the large majority of cases of sudden infant death diagnosed as SIDS, unintentional suffocation and cause undetermined. Unsafe sleep arrangements include any sleep surface not designed for infants, sleeping with head or face covered, and sharing a sleep surface.

In Missouri, of the **42** sudden unexpected infant deaths reviewed by county panels and diagnosed as SIDS in 2001, **22** (52%) were known to be sleeping on their stomach or side. **Twenty-seven** (64%) of those infants were not sleeping in a standard crib on a firm mattress. **Seventeen** (40%) were sleeping in an adult bed. **Only 2** (5%) sudden infant deaths diagnosed as SIDS were known to be sleeping alone on their backs in a standard crib with head and face uncovered.

Figure 14. Missouri SIDS Deaths, 1999-2001: Sleep Environment



“Infant mortality is the most sensitive index we possess in social welfare.”

*-Julia Lathrop
Children’s Bureau, 1913*

A SAFE SLEEPING ENVIRONMENT FOR YOUR BABY

The American Academy of Pediatrics, the Consumer Product Safety Commission and the National Institute of Child Health and Human Development have revised their recommendations on safe bedding practices when putting infants down to sleep. Here are the revised recommendations to follow for infants under 12 months:



Safe Bedding Practices For Infants

- Place baby on his/her back on a firm tight-fitting mattress in a crib that meets current safety standards.
- Remove pillows, quilts, comforters, sheepskins, stuffed toys and other soft products from the crib.
- Consider using a sleeper or other sleep clothing as an alternative to blankets, with no other covering.
- If using a blanket, put baby with feet at the foot of the crib. Tuck a thin blanket around the crib mattress, reaching only so far as the baby's chest.
- Make sure your baby's head remains uncovered during sleep.
- Do not place baby on a waterbed, sofa, soft mattress, pillow or other soft surface to sleep.

Placing babies to sleep on their backs instead of their stomachs has been associated with a dramatic decrease in deaths from Sudden Infant Death Syndrome (SIDS). Babies have been found dead on their stomachs with their faces, noses and mouths covered by soft bedding, such as pillows, quilts, comforters and sheepskins. However, some babies have been found dead with their heads covered by soft bedding even while sleeping on their backs.

Risk Reduction Recommendations:

The following risk reduction recommendations are from SIDS Resources, Inc., the SIDS Alliance and the American Academy of Pediatrics.

For parents:

- *Sleep position:* Infants should be placed on their backs to sleep throughout the first year of life.
- *Bedding:* Avoid soft bedding. Place baby on a firm tight-fitting mattress in a crib that meets current safety standards. Avoid placing the baby on soft quilts or comforters, sofas, pillows, waterbeds or sheepskins. Stuffed animals should not be placed in the crib with the baby. Avoid using bumper pads.
- *Temperature:* To avoid overheating, do not overdress the baby or over-bundle the baby.
- *Smoking:* Avoid smoking during pregnancy. Create a smoke-free environment around the baby after birth.
- *Breastfeeding:* Mothers should be encouraged to breastfeed. Some researchers have found that breastfeeding is a protective factor for SIDS.
- *Prenatal care and well-baby care.*

For community leaders and policy makers:

- *Support Safe-Sleep campaigns.*

For professionals:

- Newborn nursery personnel, physicians, nurses and public health officials should instruct all new parents and child care personnel in safe sleeping practices and other strategies to reduce the risk of SIDS.

For Child Fatality Review Panels:

- All sudden, unexplained deaths of infants <1 year of age require autopsy by a child death pathologist and review by a county CFRP panel. The data pertaining to infant deaths is critical in identifying risk factors for SIDS and providing targeted prevention messages for parents.

Something We Can Do: The Safe Crib-Safe Sleep Campaign

The safest place for an infant to sleep is in a standard crib, on his or her back without soft bedding or toys of any kind. The American Academy of Pediatrics, the Consumer Product Safety Commission and the National Institute of Child Health and Human Development have revised their recommendations on safe bedding practices when putting infants down to sleep to incorporate this new information. Unfortunately, many parents have not received this information and, for a variety of reasons, are unable to provide a safe crib for their infant.

The Safe Crib Project provides a safe, new crib to families in need, along with critical parent education about safe sleep arrangements for infants. Funded by the Children's Trust Fund (CTF), this prevention model was designed and implemented in 1995 in response to sudden infant deaths brought to the attention of the CFRP panels in the St. Louis metro area. The St. Louis model continues today as a self-sustaining program that has served hundreds of families. In communities throughout Missouri, social service agencies, community health agencies, hospitals and similar organizations have collaborated to implement the Safe Crib Project, using funding from CTF. The goal of this innovative project is to save infant lives and support families. For additional information about CTF, active Safe Crib Projects or funding opportunities, please contact CTF at 573-751-5147 or visit www.ctf4kids.org.

Resources and Links:

Safe Bedding Practices for Infants:

Consumer Product Safety Commission
American Academy of Pediatrics

www.cpsc.gov
www.aap.org

SIDS Resources, Inc., 143 Grand, St. Louis, MO 63122 800-421-3511
Counseling and support, research, training and education throughout Missouri.

Children's Trust Fund
"Safe Crib-Safe Sleep" Campaign

www.ctf4kids.org
573-751-5147

Sudden Unexpected Death: A Guide for Missouri
Coroners and Medical Examiners

www.dss.state.mo/stat/index.html



Safe Crib – Safe Sleep